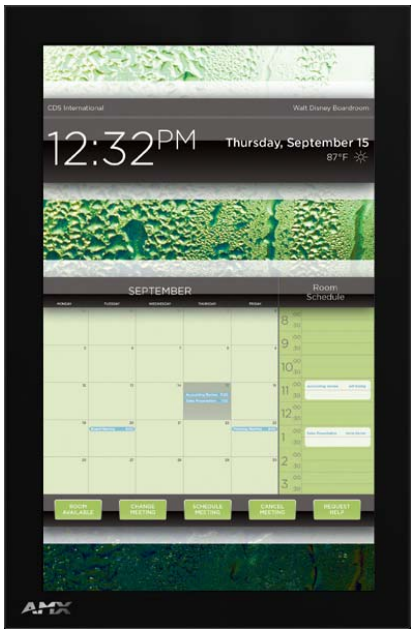
# Operation/Reference Guide

# MXT/D-1000

10.1" Modero X Series® Tabletop Touch Panel
10.1" Modero X Series®  Wall/Flush Mount Touch Panel




Touch Panels

Last Updated: 10/9/2013

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# Modero X Series® Touch Panels

## Overview

See more and do more with the most elegant interface designed specifically for dedicated room control. The Modero X Series® Touch Panels provide several industry firsts, including a beautiful, panoramic capacitive multi-touch screen that provides users access to multiple applications with minimal navigation. It is hardware-ready for support of Near Field Communication™ (NFC) Technology, to allow personalization of the user experience and productivity enhancing capabilities through integration with NFC capable personal devices. The distinctive, low-profile design is engineered to sit perfectly on a table without obstructing views. Modero X Series is the control surface that simply delivers more.

## Features

- **Panoramic Control Surface –** Combined with the new PanTastic UI, the panoramic touch panels take the user experience to a whole new level with an impressive control surface to perform activities much in the same way you use a computer – multi-tasking with dedicated spaces.
- **Future Technology Visions –** HD video chat and conferencing using integrated camera and hardware - ready to support Near Field Communication (NFC) Technology, which promises short-range wireless technologies that deliver peer-to-peer communication by 'sharing, pairing and transaction' between RF devices like exchanging data/identities.
- **Enhanced Usability –** External phone connections via Bluetooth or USB and HD video streaming.
- **Graphic Leaps & Bounds –** The Modero X Series includes some striking new intuitive UI functionality including: gesturing, swiping, dynamic reordering and enhanced animation capabilities
- **Perfect From Any Angle –** Includes In-Plane Switching (IPS), the latest technology in popular tablet/mobile devices that delivers the widest viewing angles and the most accurate color reproduction on the market.

## Modero X Dealer Benefits

- **Attract More Corporate Customers -** The elegant design and simple beauty of the Modero X Series will create demand from both new and current customers.
- **Address Unique Requirements –** With a panoramic profile, the Modero X Series provides dealers with a solution for uses where multiple applications must be viewed simultaneously.
- **Differentiate Yourself –** The Modero X Series offers design and technology features unmatched in the industry.

## Modero X Customer Benefits

- **Multi-Task Capability –** The contemporary design provides a large control surface, which allows multiple views for different activities such as presenting, controlling and previewing.
- **Simple to Use Interfaces –** The capacitive multi-touch screen combined with intuitive user-interfaces makes it easy for anyone to operate sophisticated meeting room equipment
- **Sleek, Low-Profile Design -** The Modero X Series is engineered to sit perfectly on a table without obstructing views.

## MXT-1000

The MXT-1000 (**FG5968-03**) (FIG. 1) is ideal for boardrooms, conference rooms, or auditoriums where a panoramic control surface is needed to provide access to multiple functions simultaneously while remaining elegantly unobtrusive. In residences, it is perfect for kitchens, home theaters, or home offices where the panoramic control surface can be used to manage systems throughout the house.

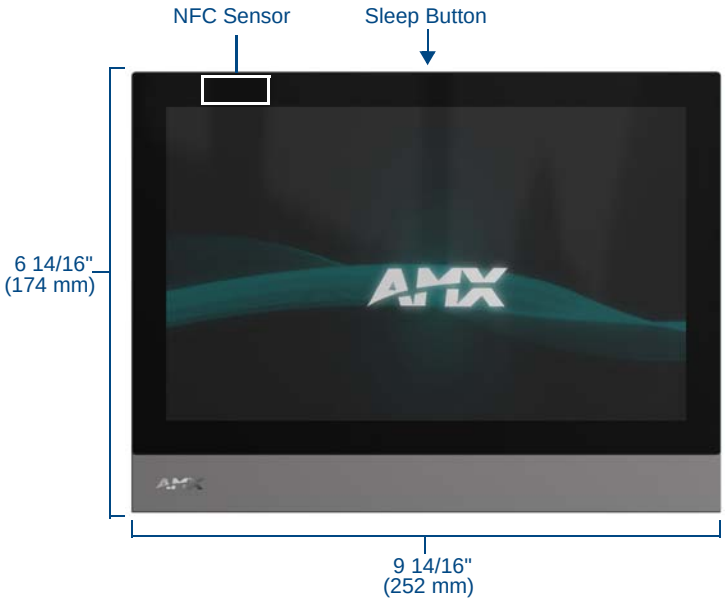


**FIG. 1** MXT-1000 touch panel

The MXT-1000 features a 9.9" x 6.7" (252 mm x 170 mm), 12.0" (304 mm) diagonal display, with a viewable area of 8.5" x 5.3" (217mm x 136mm), 10.1" (257mm) diagonal.

The device communicates via Ethernet (10/100 port, RJ-45 connector, supported IP and IP-based protocols: UCP, TCP, ICMP, ICSP, IGMP, DHCP, Telnet, FTP, DNS, RFB for VNC, and HTTP) and USB (3 USB host 2.0, Type A ports and 1 Micro-USB device port).

The MXT-1000 also supports Near Field Communication (NFC) technology (please see the *NFC* on page 12 for more information) and Bluetooth keyboard and mouse use via the optional MXA-BT Bluetooth Adapter.

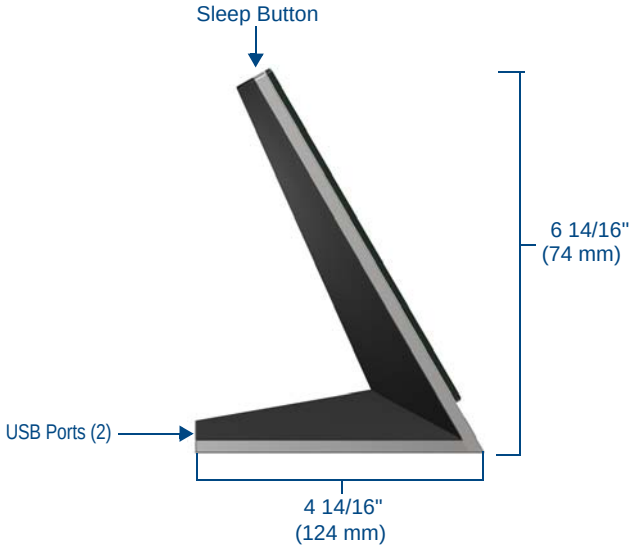


**FIG. 2** MXT-1000 side view

| MXT-1000 Specifications | |
|---|---|
| Power Requirements: | PoE (Power over Ethernet), 802.3af, class 3 |
| Power Consumption: | • Full-On: 8W maximum<br>• Standby: 3.2 W<br>• Shutdown: 1 W |
| Front Panel Components: | |
| NFC Transceiver: | Antenna and transceiver for Near Field Communications device detection and interaction. |
| Light Sensor: | Photosensitive light detector for automatic adjustment of the panel brightness. |
| Motion Sensor: | Proximity detector to wake the panel when it is approached.<br>• Typical Range: 1 foot (30.48 cm)<br>• *Maximum Range:* 3 feet (91.44 cm)<br>• *Range width:* 10 degrees |
| LED Indicator: | Camera active indicator |
| Sleep Button: | Single button on top of panel for placing panel in sleep mode, for powering off the panel, and for accessing the Settings Pages. |
| Microphone: | -42dB ± 3dB sensitivity FET microphone |
| Speakers: | 4 ohm, 2 Watt, 300Hz cutoff frequency |
| Camera: | HD 720P camera for video conferencing/video chat support. |
| Rear Panel Components: | |
| USB connections: | 2 easily accessible USB ports on rear of base, used for connection to keyboard, mouse, or USB drive. |
| Micro-USB Port: | 5-pin Micro-USB connector used for camera video and microphone output only. |
| Ethernet 10/100 Port and Cable: | 10/100 Base-T RJ-45 connector for Ethernet connectivity and PoE. |
| Touch Panel Display: | |
| Display Type: | TFT Active Matrix Color LCD with In-Plane Switching (IPS) technology. |
| Display Size: | 9.9" x 6.7" (252 mm x 170 mm), 12.0" (304 mm) diagonal |
| Viewable Area: | 8.5" x 5.3" (217mm x 136mm), 10.1" (257mm) diagonal |
| Viewing Angle: | • Vertical: ± 89°<br>• Horizontal: ± 89° |
| Screen Resolution (W x H): | 1200x800 |
| Aspect Ratio (W x H): | 16x9 |
| Brightness: | 400 cd/m2 |
| Contrast Ratio: | 1000:1 |
| Color Depth: | 264K colors |
| Backlight Type: | LED |
| Touch Overlay: | Projected Capacitive; Multi-touch support, 3 simultaneous max. |
| Communications: | |
| Ethernet: | 10/100 port, RJ-45 connector and cable. Supported IP and IP-based protocols: UCP, TCP, ICMP, ICSP, IGMP, DHCP, Telnet, FTP, DNS, RFB (for VNC), HTTP |
| USB: | 2 - USB host 2.0, Type A ports |
| Near Field Communications (NFC): | Supports standards ISO/IEC 15693, ISO/IEC 14443A, ISO/IEC 14443B; Unique Identifier (UID), Typical Range = .25”, Maximum Range = .5" |
| Bluetooth: | HID Profile v1.1, Keyboard/Mouse Support, requires MXA-BT Bluetooth Adapter. |

| MXT-1000 Specifications (Cont.) | |
|---|---|
| Video: | |
| Supported Video Codecs: | • MPEG2-TS: MPEG-2 Main Profile @High Level up to 720p at 25 fps (decode only)<br>• MJPEG up to 720p at 25 fps (decode only) |
| Streaming/File Formats: | MPEG-TS for MPEG2; HTTP for MJPEG |
| Video Conferencing: | External application using on-board camera and microphone through Micro-USB connection. |
| Audio: | |
| Streaming/File Formats: | WAV, MP3 |
| Intercom: | Full Duplex VoIP, SIP v2.0 (supported with AMX-CSG) |
| Operating Environment: | • Operating Temperature: 32° F to 104° F (0° C to 40° C)<br>• Storage Temperature: 4° F to 140° F (-20° C to 60° C)<br>• Humidity Operating: 20% to 85% RH<br>• Humidity Storage: 5% to 85% RH<br>• Power ("Heat") Dissipation: On: 27.3 BTU/hr, Standby: 10.9 BTU/hr |
| Dimensions (HWD): | 6 14/16" x 9 14/16" x 4 14/16" (174 mm x 252 mm x 124 mm) |
| Weight: | 3.0 lbs (1.36 Kg) |
| Certifications: | • FCC Part 15 Class B<br>• C-Tick CISPR 22 Class B<br>• CE EN 55022 Class B and EN 55024<br>• CB Scheme IEC 60950-1<br>• IC<br>• IEC/EN-60950<br>• RoHS |
| Included Accessories: | • MXT-1000 Installation Guide (**93-5968-03**)<br>• MXA-CLK Modero X Series Cleaning Kit (**FG5968-16**)<br>• HPG-10 .75-inch HydraPort .75-IN. Grommet (**FG570-01**)<br>• MXA-USB-C USB Cover Kit (**FG5968-18**) |
| Other AMX Equipment: | • PS-POE-AF-TC, POE Injector, 802.3af Compliant (**FG423-83**)<br>• MXA-BT Bluetooth USB Adaptor (**FG5968-19**)<br>• MXA-CLK, Modero X Series Cleaning Kit (**FG5968-16**)<br>• NXA-ENET8-2POE, Gigabit Switch, 8 Port POE, 2 Port SFP (**FG2178-63**) |

## Connector Locations

With the unit facing you, the two USB ports for peripherals are located on the rear right corner of the device (FIG. 3). The RJ45 connector for PoE, as well as a 5-pin Micro-USB port, is also located on the back of the device.

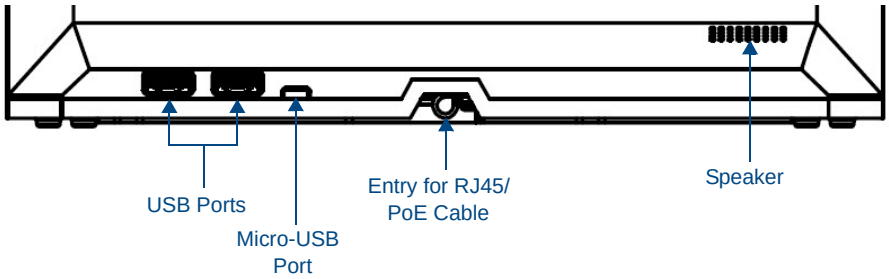


**FIG. 3** MXT-1000 USB port location

In addition to its speaker, the MXT-1000 also utilizes its Micro-USB port for video output from camera video and microphone output.

### Memory

The MXT-1000 comes with 512 MB of SDRAM and 4 GB of Flash memory, neither of which can be upgraded. A maximum of 2.4 GB is available to the user for projects.

### Basic Operation

The MXT-1000 is operated using its integral touchscreen, as well as the **Sleep** button on the top of the device (FIG. 1). If the device has gone into its Sleep Mode, a touch of the touchscreen or of the Sleep button will reactivate it.

### Powering on the MXT-1000

The MXT-1000 may be powered on by touching and holding the **Sleep** button on the top of the device.

### Microphone

The MXT-1000 contains a built-in microphone above the touch screen for video and audio conferencing capabilities. This microphone is concealed by the casing.

### Audio/Video Capabilities

The MXT-1000 has the capability of displaying multiple JPEG and PNG files at one time. The device also supports streaming motion JPEG video (of the sort used by many IP and Web cameras), as well as MP3 and WAV audio files.

## MXT-1000-NC

The MXT-1000-NC (**FG5968-24**) No Comm touch panel does not have camera, microphone, or NFC capability. It otherwise has all of the functionality of the MXT-1000 panel.

## MXD-1000

The MXD-1000 10.1" Modero X Series Panoramic Wall Touch Panels (*Portrait Wall Mount:* ***FG5968-07****; Landscape Wall Mount:* ***FG5968-13***) are ideal for boardrooms, conference rooms, or auditoriums where a panoramic control surface is needed to provide access to multiple functions simultaneously while remaining elegantly unobtrusive. In residences, they are perfect for kitchens, home theaters, or home offices where the panoramic control surface can be used to manage systems throughout the house.

The MXD-1000 features a 9.9" x 6.7" (252 mm x 170 mm), 12.0" (304 mm) diagonal (Landscape) or 6.7" x 9.9" (170 mm x 252 mm), 12.0" (304 mm) diagonal (Portrait) display, with a viewable area of 8.5" x 5.3" (217mm x 136mm), 10.1" (257mm) diagonal (Landscape) or 5.3" x 8.5" (136 mm x 217 mm), 10.1" (257mm) diagonal.

The device communicates via Ethernet (10/100 port, RJ-45 connector, supported IP and IP-based protocols: UCP, TCP, ICMP, ICSP, IGMP, DHCP, Telnet, FTP, DNS, RFB for VNC, and HTTP) and USB (1 USB host 2.0, Type A port and 1 Micro-USB device port).

The MXD-1000 also supports Near Field Communication (NFC) technology (please see the *NFC* on page 12 for more information) and Bluetooth keyboard and mouse use via the optional MXA-BT Bluetooth Adapter.

**FIG. 4** MXD-1000, Landscape Wall Mount

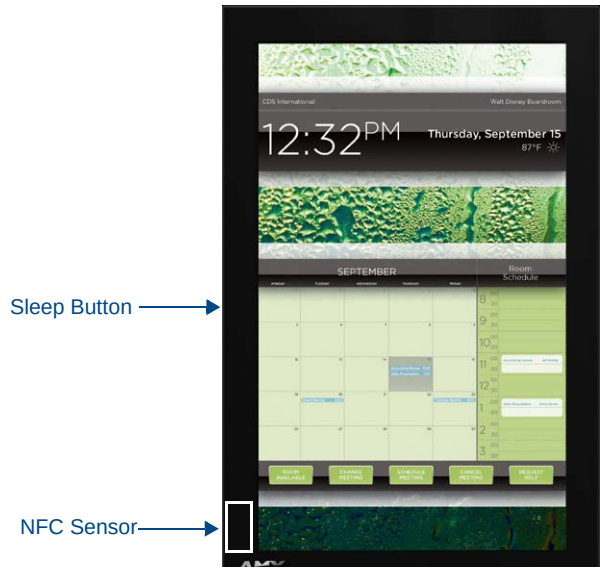


**FIG. 5** MXD-1000, Portrait Wall Mount

| MXD-1000 Specifications | |
|---|---|
| Power Requirements: | PoE (Power over Ethernet), 802.3af, class 3 |
| Power Consumption: | • *Full-On:* 8W maximum<br>• *Standby:* 3.2 W<br>• *Shutdown:* 1 W |
| Front Panel Components: | |
| NFC Transceiver: | Antenna and transceiver for Near Field Communications device detection and interaction. |
| Light Sensor: | Photosensitive light detector for automatic adjustment of the panel brightness. |
| Motion Sensor: | Proximity detector to wake the panel when it is approached.<br>• *Typical Range:* 1 foot (30.48 cm)<br>• *Maximum Range:* 3 feet (91.44 cm)<br>• *Range width:* 10 degrees |
| LED Indicator: | Camera active indicator (landscape only) |
| Sleep Button: | Single button on edge of panel for placing panel in sleep mode, for powering off the panel, and for accessing the Settings Pages. |
| Microphone: | -42dB ± 3dB sensitivity FET microphone |
| Speakers: | 4 ohm, 2 Watt, 300Hz cutoff frequency |
| Camera (landscape only: | HD 720P camera for video conferencing/video chat support. |
| Rear Panel Components: | |
| USB Port: | USB connector used for keyboard and mouse connections, or for firmware uploads. |
| Micro-USB Port: | 5-pin Micro-USB connector used for video output from camera video (Landscape Only) and microphone output only. |
| Ethernet 10/100 Port: | 10/100 Base-T RJ-45 connector for Ethernet connectivity and PoE. |
| Touch Panel Display: | |
| Display Type: | TFT Active Matrix Color LCD with In-Plane Switching (IPS) technology. |
| Display Size: | • *Landscape*: 9.9" x 6.7" (252 mm x 170 mm), 12.0" (304 mm) diagonal<br>• *Portrait:* 6.7" x 9.9" (170 mm x 252 mm), 12.0" (304 mm) diagonal |
| Viewable Area (W x H): | • Landscape: 8.5" x 5.3" (217mm x 136mm), 10.1" (257mm) diagonal<br>• Portrait: 5.3" x 8.5" (136 mm x 217 mm), 10.1" (257mm) diagonal |
| Viewing Angle: | • Vertical: ± 89°<br>• Horizontal: ± 89° |
| Screen Resolution (W x H): | • *Landscape:* 1280x800<br>• *Portrait:* 800x1280 |
| Aspect Ratio (W x H): | • Landscape: 16:9<br>• Portrait: 9:16 |
| Brightness: | 400 cd/m2 |
| Contrast Ratio: | 700:1 |
| Color Depth: | 264K colors |
| Backlight Type: | LED |
| Touch Overlay: | Projected Capacitive; Multi-touch support, 3 simultaneous max. |
| Communications: | |
| Ethernet: | 10/100 port, RJ-45 connector and cable. Supported IP and IP-based protocols: UCP, TCP, ICMP, ICSP, IGMP, DHCP, Telnet, FTP, DNS, RFB (for VNC), HTTP |
| USB: | 1 - USB host 2.0, Type A ports |
| Near Field Communications (NFC): | Supports standards ISO/IEC 15693, ISO/IEC 14443A, ISO/IEC 14443B; Unique Identifier (UID), Typical Range = .25", Maximum Range = .5" |

| MXD-1000 Specifications (Cont.) | |
|---|---|
| Communications (Cont.): | |
| Bluetooth: | HID Profile v1.1, Keyboard/Mouse Support, requires MXA-BT Bluetooth Adaptor. |
| Video: | |
| Streaming/File Formats: | MPEG-TS for MPEG2; HTTP for MJPEG |
| Video Conferencing (Landscape Only): | External application using on-board camera and microphone through Micro-USB connection. |
| Audio: | |
| Streaming/File Formats: | WAV, MP3 |
| Intercom: | Full Duplex VoIP, SIP v2.0 (supported with AMX-CSG) |
| Operating Environment: | • Operating Temperature: 32° F to 104° F (0° C to 40° C)<br>• Storage Temperature: 4° F to 140° F (-20° C to 60° C)<br>• Humidity Operating: 20% to 85% RH<br>• Humidity Storage: 5% to 85% RH<br>• Power ("Heat") Dissipation: On: 27.3 BTU/hr, Standby: 10.9 BTU/hr |
| Dimensions (HWD): | • *Landscape:* 6 11/16" x 9 7/8" x 2 5/8" (171 mm x 252 mm x 67 mm)<br>• *Portrait:* 9 7/8" x 6 11/16" x 2 5/8" (252 mm x 171 mm x 67 mm) |
| Weight: | 2.0 lbs (0.91 Kg) |
| Certifications: | • FCC Part 15 Class B<br>• C-Tick CISPR 22 Class B<br>• CE EN 55022 Class B and EN 55024<br>• CB Scheme IEC 60950-1<br>• IC<br>• IEC/EN-60950<br>• RoHS |
| Included Accessories: | • MXD-1000 Installation Guide (**93-5968-07**)<br>• MXA-CLK Modero X Series Cleaning Kit (**FG5968-16**)<br>• MXD-1000 Installation Template (**68-5968-03**)<br>• MXD-1000 Back Box (**68-5968-03**) |
| Other AMX Equipment: | • PS-POE-AF-TC, POE Injector, 802.3af Compliant (**FG423-83**)<br>• MXA-BT Bluetooth USB Adaptor (**FG5968-19**)<br>• CB-MXP10 Rough-In Box and Cover Plate for the 10" Wall Mount Modero X Series Touch Panels (**FG039-17**)<br>• NXA-ENET8-2POE, Gigabit Switch, 8 Port POE, 2 Port SFP (**FG2178-63**) |

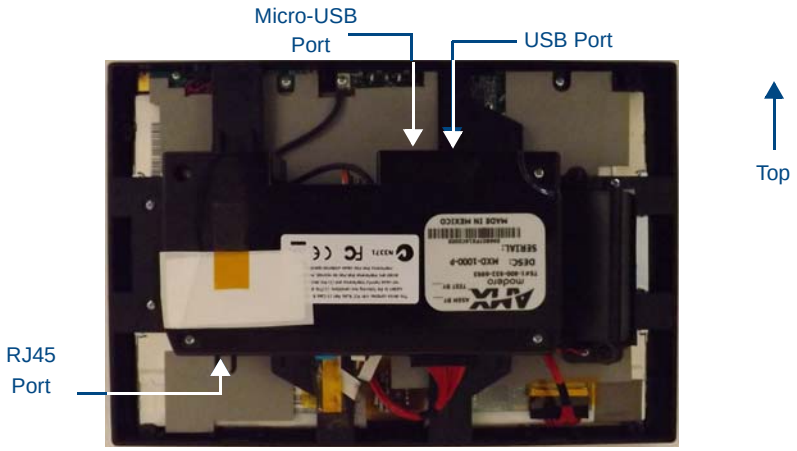


**FIG. 6** Rear of the MXD-1000 (Portrait)

### Memory

The MXD-1000 comes with 512 MB of SDRAM and 4 GB of Flash memory, neither of which can be upgraded. A maximum of 2.4 GB is available to the user for projects.

### Basic Operation

The MXD-1000 is operated using its integral touchscreen, as well as the **Sleep** button on the top of the device (FIG. 4). If the device has gone into its Sleep Mode, a touch of the touchscreen or of the **Sleep** button will reactivate it.

### Powering on the MXD-1000

The MXD-1000 may be powered on by touching and holding the **Sleep** button on the top of the device.

### Microphone

The MXD-1000 contains a built-in microphone above the touch screen for video and audio conferencing capabilities. This microphone is concealed by the casing.

### Audio/Video Capabilities

The MXD-1000 has the capability of displaying multiple JPEG and PNG files at one time. The device also supports streaming motion JPEG video (of the sort used by many IP and Web cameras), as well as MP3 and WAV audio files.

## MXD-1000-NC

The MXD-1000-P-NC (**FG5968-25**) and MXD-1000-L-NC (**FG5968-26**) No Comm touch panels do not have camera, microphone, or NFC capability. These otherwise have all of the functionality of the MXD-1000 panels.

# MXD/T-1000 Features

## Picture View

By connecting a USB drive via one of the device's USB ports (FIG. 3), Picture View allows the MXT-1000 to access JPEG images on that drive and display them on the touchscreen (FIG. 7). Individual images may be accessed at any time, or the entire collection may be displayed for predetermined times. Picture View may be stopped at any time by removing the USB drive, and the MXT-1000 will return to its default display page.

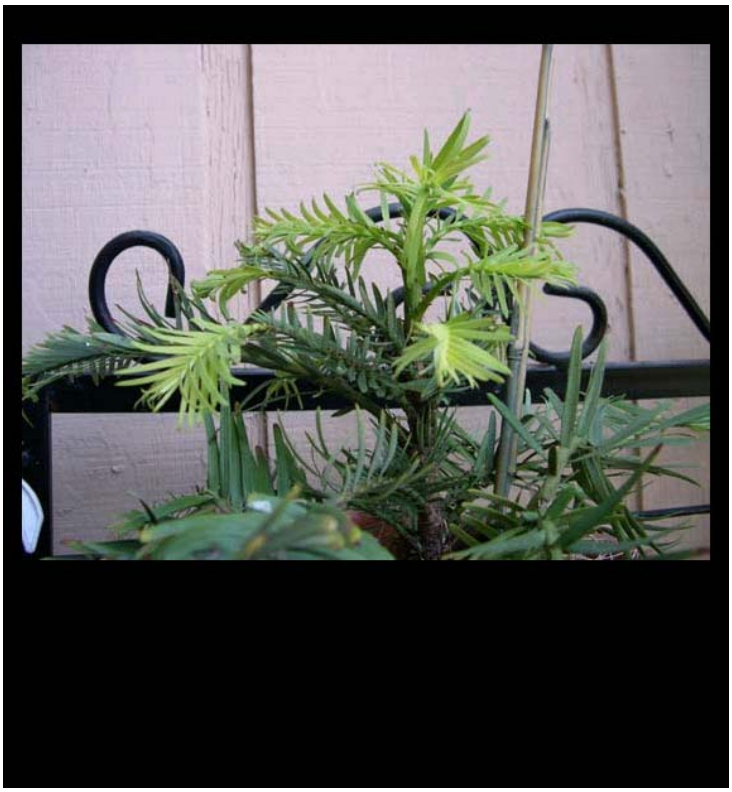

**FIG. 7** Picture View display

*The maximum source resolution for Picture View is 1920x1920 pixels.The maximum displayed resolution is the same as the screen resolution.*

To start Picture View:

1. Connect a USB drive to the device. Picture View will automatically recognize all available images on the drive and start displaying them on the touchscreen.
2. When the images begin to display, touch any place on the touchscreen to open the configuration popup menu (FIG. 8). If no selection is made, this menu will remain in place for 15 seconds and then disappear. It may be accessed again by touching anywhere on the touchscreen.
3. On the leftmost amber button, select between **Rand** (images display at random) and **A-Z** (images display in alphabetical order based on the name of the file).
4. The four grey buttons allow scrolling through saved images and the rate of display:
   - The **Previous Image Saved** button returns the display to the first image uploaded by Picture View.
   - The **Stop** button stops Picture View and returns to the default panel page.
   - The **Pause/Resume** button allows the display to stop on one particular image. Press it again to resume the display procession.

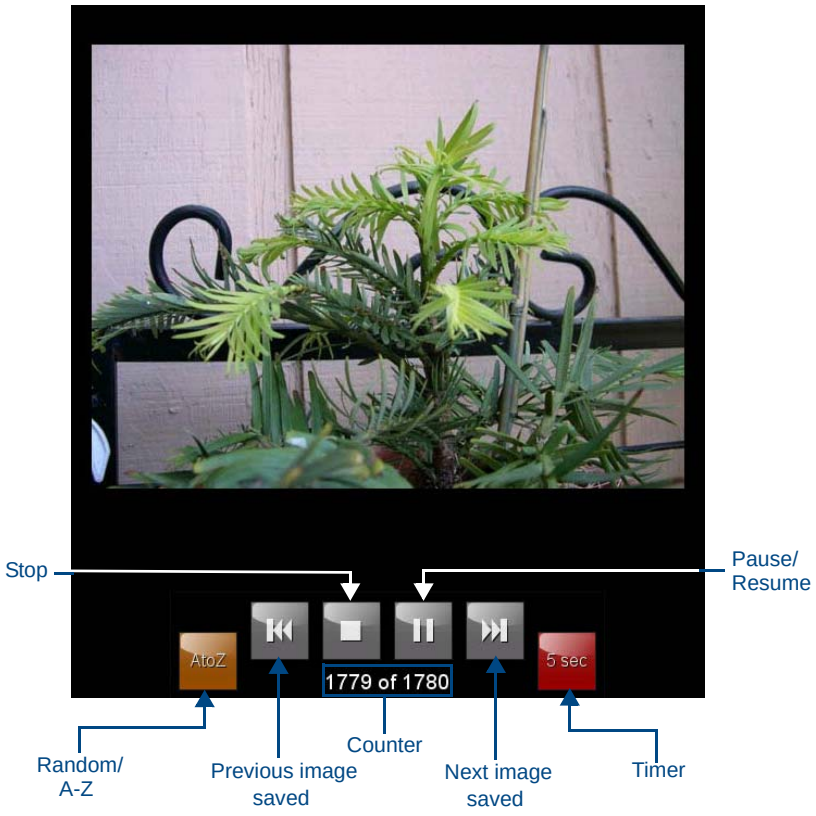


**FIG. 8** Picture View configuration popup menu

- The **Next Image Saved** button returns the display to the last image uploaded by Picture View. If the panel has not accessed all of the images available on a USB drive, Picture View will display the last one uploaded to date.

5. On the rightmost red button, select the number of seconds a selected image will be displayed in Picture View. This may be selected between 5, 10, 15, 30, and 60 seconds.
6. The counter beneath the buttons displays the number of images currently uploaded by the MXT-1000 versus the number detected on the USB drive.

## Preview Mode and Normal Mode

Picture View has two modes: Preview Mode and Normal Mode. Preview Mode allows the user to configure Picture View. Once a USB drive containing images is inserted into the panel, the images will begin to display. Touching any place on the display will result in the configuration popup to slide from the bottom of the display.

Picture View goes into its Normal Mode when the MXT-1000 goes into idle timeout while connected to a USB drive. Normal Mode displays images until the touchscreen is touched, or some other wakeup event is detected. When the device goes back into timeout, Normal Mode will return to displaying images until the USB drive is removed from the device.

## Picture View Send Command

The **^PIC** Send Command stops either mode of Picture View, or starts Preview Mode. For more information, please refer to the *Modero X Series Programming Guide*, available at **www.amx.com**.

NOTE

*All images must be in JPEG format. PNG and other image formats cannot be viewed through Picture View.*

### Configuration

The MXT-1000 and MXD-1000 are equipped with Settings Pages that allow you to set and configure various features on the panels. For more information on connecting and configuring the touch panels to a network, please refer to the *Modero X Series Programming Guide*, available at **www.amx.com**.

### Bluetooth Support

Both the MXT-1000 and the MXD-1000 allow the use of Bluetooth keyboard and mouse combinations, using HID Profile v1.1. Using a keyboard and mouse with the device requires use of the MXA-BT Bluetooth USB Adaptor (**FG5968-19**).

### NFC

Both the MXT-1000 and the MXD-1000 support Near Field Communications™ (NFC) Technology. NFC technology facilitates making transactions, exchanging digital content, and connecting electronic devices with a touch. NFC transmissions are short-range (from a touch to a few centimeters), working with existing contactless card technologies and containing built-in capabilities to support secure applications. By using NFC technology, users may receive access to touch panels and touch panel pages through access badges and other card options.

**Common Access Card (CAC) Support In MXT/D-1000**

| Card Type | Card Unique Identifier (UID) | Card Data | Personal Identity Verification (PIV) Card holder UID |
|---|---|---|---|
| 15693 | 8 byte UID | Not Supported | N/A |
| 14443A Non-Gov't | 4, 7 or 10 byte UID (1) | Not Supported | N/A |
| 14443A Gov't | 4, 7 or 10 byte UID (1) | Not Supported (2) | Not currently |
| 14443B Non-Gov't | 4 byte UID | Not Supported | N/A |
| 14443B Gov't | 4 byte UID | Not Supported (2) | Not currently |
| FeliCa | Not Supported | Not Supported | N/A |
| (1) The UID can be a fixed unique number or a random number dynamically generated by the card. | | | |
| (2) Requires contact card reader (not accessible via NFC) | | | |

The maximum range for the NFC antenna is 0.5" (12.7 mm), but the typical usage range is 0.25" (6.35 mm). The antenna itself is accessible from the front of the panel, 3.25" (82.55 mm) from the left corner of the panel and 0.375" (9.53 mm) from the top edge. When using an NFC device with the MXT-1000, you should align your device's antenna with the center of the touch panel's antenna (FIG. 1 and FIG. 4).

NOTE

*To facilitate NFC antenna access, you may want to add an icon to the panel's page(s), pointing to the location of the antenna on the panel.*

## Cleaning the Touch Overlay and Case

Both the MXT-1000 and the MXD-1000 come with the MXA-CLK Modero X Series Cleaning Kit (**FG5968-16**), which may be used to clean fingerprints and dirt from the device. This kit comes with cleaning cloths and a bottle of cleaning fluid specifically for use with the device.

When cleaning the device, **do not directly spray the device with cleaning fluid**. Instead, spray the cloth and then apply the cloth to the touch screen. Do **NOT** use abrasives of any type to clean the device, as abrasives may permanently damage or remove the device's finish.

# Installation

## MXT-1000 Installation

Any USB peripherals (mouse, keyboard, etc.) may be connected to one of the two USB ports on the rear of the device (FIG. 9). Updates to the device's firmware are also made via the USB ports. The 5-pin Micro-USB port is used exclusively for camera video and microphone output only.

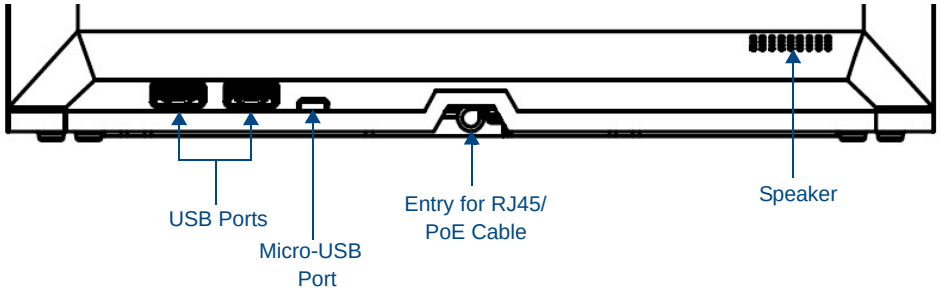


**FIG. 9** Connectors on the rear of the MXT-1000

## Power via Power Over Ethernet

Power for the MXT-1000 is supplied via Power Over Ethernet (PoE), utilizing an AMX-certified, capacitive touch-compliant PoE injector such as the PS-POE-AT High Power PoE Injector (**FG423-81**) or other approved AMX PoE power source. The incoming Ethernet cable should be connected to the RJ45 port on the cable attached to the device (FIG. 10).

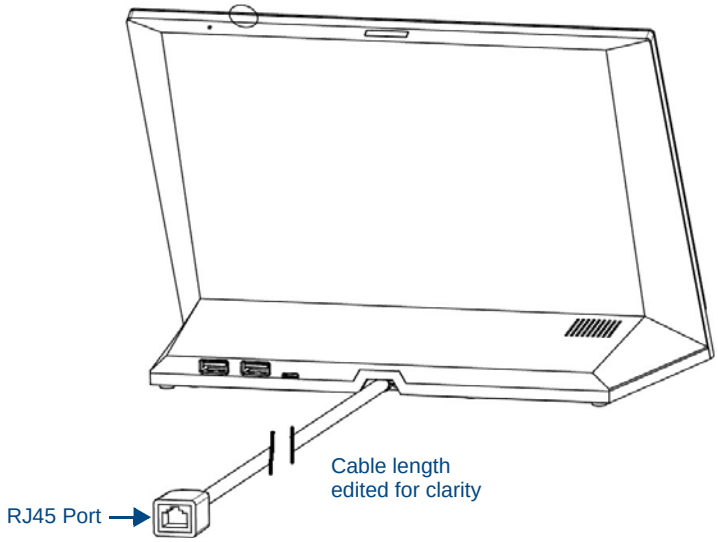


**FIG. 10** Back of the MXT-1000, showing RJ45 port and cable for PoE

## Ethernet Cable Installation and Modification

In installations where you wish to conceal the Ethernet cable, a hole at least 1.00" (2.54 cm) in diameter is required in the surface to allow passage of the female RJ45 connector (FIG. 11). If using a smaller hole is unavoidable, you will need to disconnect the Ethernet cable (**ECA5968-05**) from the device.

NOTE

*The minimum diameter hole through which the Ethernet cable may pass is 0.50" (1.27 cm).*

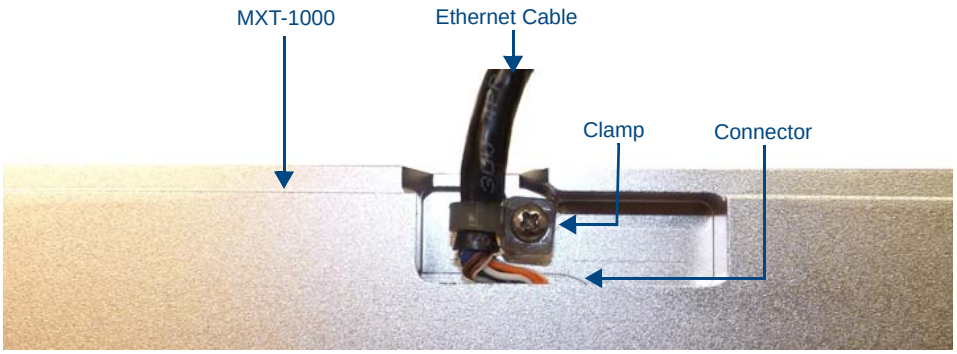


**FIG. 11** Bottom of the MXT-1000

To disconnect and reconnect the MXT-1000's Ethernet cable to allow use of a hole smaller than 1.00" in diameter:

1. On a soft surface, turn the MXT-1000 face-down to access the bottom of the device.
2. Remove the clamp holding the Ethernet cable (FIG. 11) until the Ethernet cable moves freely.
3. Remove the Ethernet cable connector and pull the cable out of the clamp.
4. Pass the Ethernet cable (**ECA5968-05**) through the hole, with the RJ45 connector on the other side of the installation surface from the device.
5. Press the Ethernet cable back into the clamp. Do **NOT** tighten the clamp at this time.
6. Using a nonconductive item such as a wooden stick, reinsert the Ethernet cable connector into the device. Use the stick to ensure that the connector is properly seated.
7. Tighten the clamp to secure the Ethernet cable. Make sure the clamp is around the bundled black cable, not the individual wires
8. Connect the RJ45 connector to its incoming Ethernet cable and apply power.

## A Note About Wall and Rack Installation

Some products are installed in areas of differing temperature and cooling methodologies. These include products installed in walls, racks, cabinets, etc. Those areas may have different temperatures and/or cooling approaches that must be taken into consideration to maintain the product within the specified operating temperature.

FIG. 12 shows an AMX device installed in a wall with a filled volume (such as with insulation or concrete), as well as with a closed volume (such as between studs in an otherwise finished wall). The diagram shows how heat generated by the device or other devices may have no way to escape, and may build up to levels that may affect device operation.

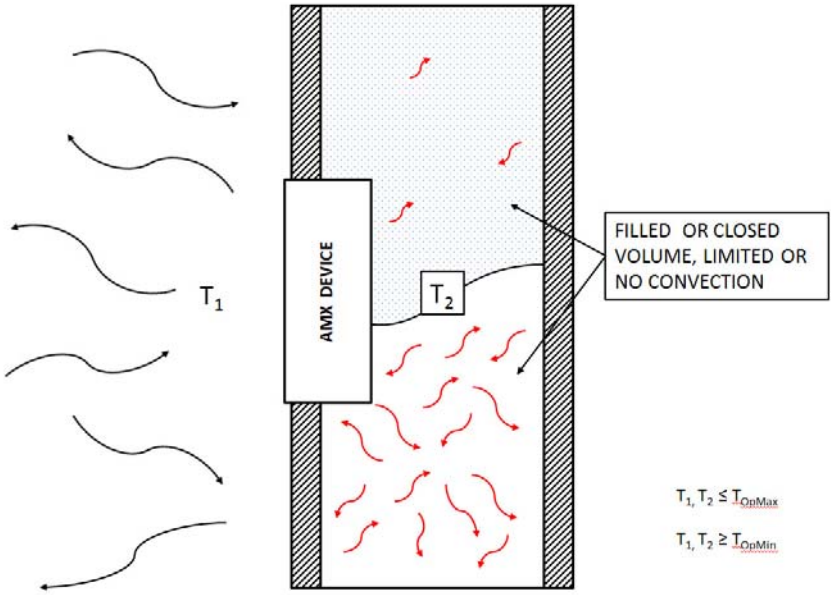


**FIG. 12** Heat convection in filled or closed volume, limited or no convection

In FIG. 13, the diagram displays an AMX device in a typical rack mounting, with full air circulation around the front and back of the device. In this case, the main concern is with heat building up between components, possibly to levels that may affect device operation.

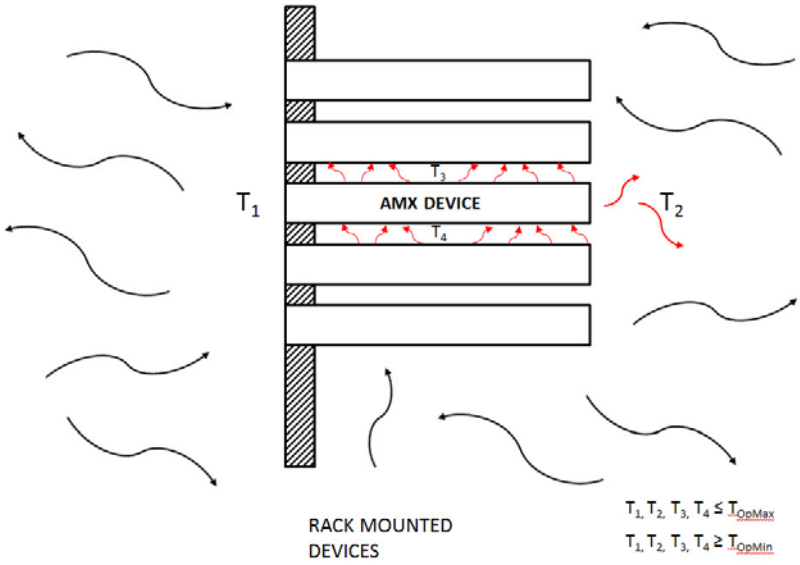


**FIG. 13** Heat convection in rack-mounted devices

### Installation Recommendations

During any installation, a lack of ventilation may produce conditions that may adversely affect the device's operation. In these circumstances, special care must be made to make sure that temperatures within enclosed areas do not exceed the device's maximum rated temperature.

NOTE

*While the outside temperature of the device may be at or below its maximum operating temperature, special care must be taken before and during installation to ensure that the maximum operating temperature is not exceeded within wall or rack installation spaces.*

## MXD-1000 Installation

The MXD-1000 may be installed directly into a solid surface environment, using either solid surface screws or the included locking tabs for different mounting options. Once installed, the MXD-1000 is contained within a clear outer housing known as the back box (FIG. 14). This back box is removed when installing the device into a wall or when using the optional Rough-In Box accessory (**FG039-17**).

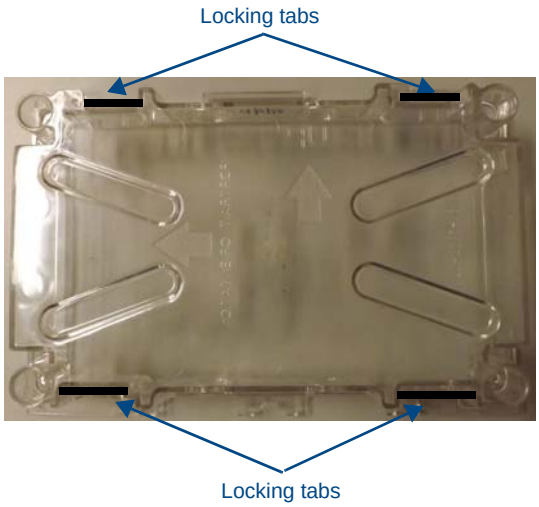


**FIG. 14** MXD-1000 Back Box

## Installing the MXD-1000 into a wall

The MXD-1000 comes with a clear plastic backbox (designed to attach the panel to most standard wall materials. This backbox has four locking tabs (two on top and two on bottom) to help lock the backbox to the wall. These locking tabs are only extended AFTER the backbox is inserted into the wall. (FIG. 15 and FIG. 16).

WARNING

*When installing the backbox, make sure that the assembly is in the correct position and in the correct place. Once the locking tabs are extended and locked into place, removing the backbox may be difficult without having access to the back of the wall or causing damage to the wall.*

NOTE

*For typical mounting surfaces, such as drywall, use the locking tabs as the primary method for securing the back box to the surface. For thin walls or solid surfaces, use mounting screws (not included).*

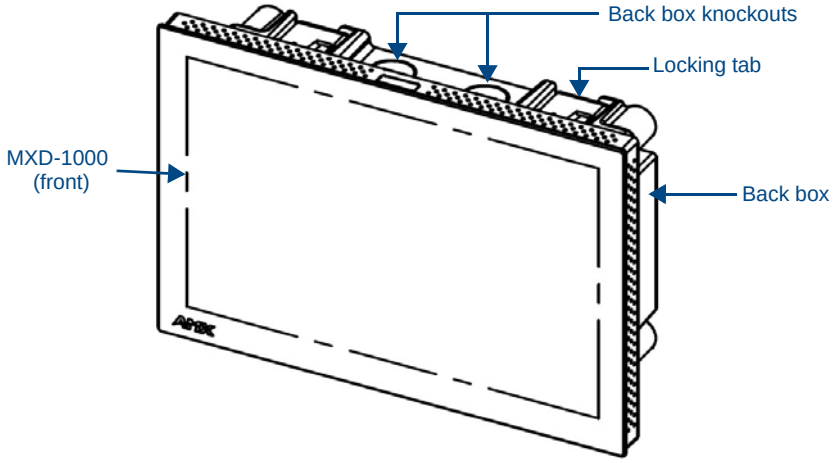


**FIG. 15** Side view of MXD-1000 (Landscape)

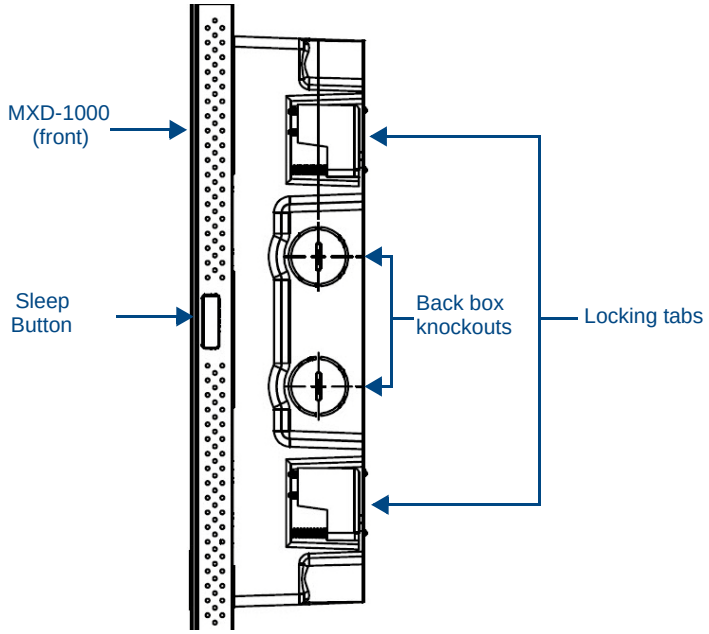


**FIG. 16** Side view of MXD-1000 (Portrait)

NOTE

*In order to guarantee a stable installation of the MXD-1000, the thickness of the wall material must be a minimum of .50 inches (1.27cm) and a maximum of .875 inches (2.22cm). The mounting surface should also be smooth and flat.*

WARNING

*The maximum recommended torque to screw in the locking tabs on the plastic back box is 5 IN-LB [56 N-CM]. Applying excessive torque while tightening the tab screws, such as with powered screwdrivers, can strip out the locking tabs or damage the plastic back box.*

To install the back box:

1. Prepare the area by removing any screws or nails from the drywall before beginning the cutout process.
2. For best results, use the MXD-1000 Installation Template (**68-5968-03**) to ensure proper placement (FIG. 17). The template is marked on one side with directions for both landscape and portrait installations to ensure that the touch panel and back box are properly aligned.

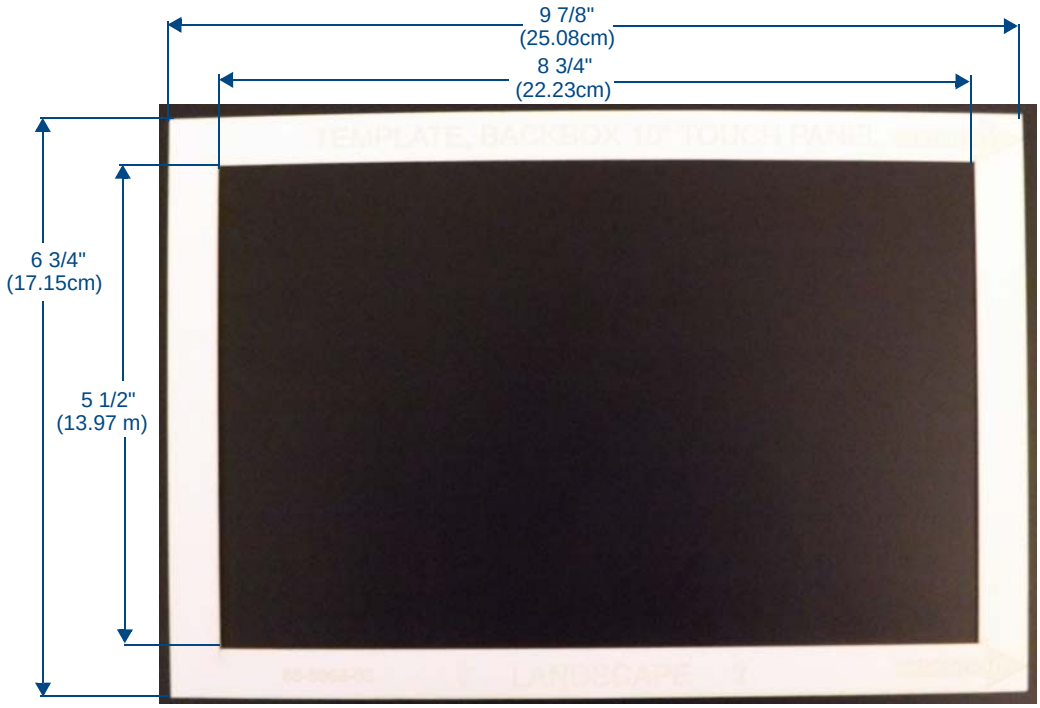


**FIG. 17** MXD-1000 Installation Template

WARNING

*Using the included template to select the final placement of the back box is highly recommended. The outside edges of the template are the same dimensions as the touch panel, which allows you to troubleshoot possible conflicts with wall edges, doors, and other potential obstacles.*

3. After ensuring proper placement, cut out the mounting surface for the back box, using the MXD-1000 Installation Template as a guide.

CAUTION

*Making sure the actual cutout opening is slightly smaller than the provided dimensions is highly recommended. This action provides the installer with a margin for error if the opening needs to be expanded. Too little wall material removed is always better than too much.*

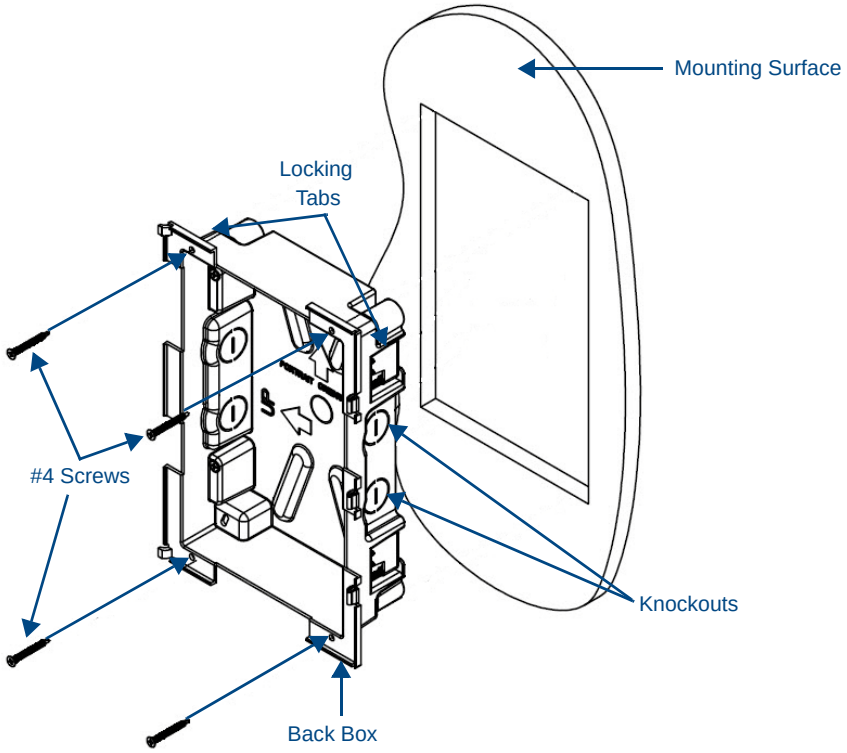


**FIG. 18** MXD-1000 Back Box Installation (Portrait)

4. Thread the incoming Ethernet and Micro-USB wiring (if Micro-USB access is desired) from their terminal locations through the surface opening (FIG. 18 ). *Leave enough slack in the wiring to accommodate any re-positioning of the panel.*
5. Remove the back box knockouts (FIG. 18) and thread the incoming wiring through the knockout holes.To facilitate installation, thread the Ethernet cable through a bottom knockout (Landscape) or a right-side knockout (Portrait), and the Micro-USB or USB cables through a top knockout (Landscape) or left knockout (Portrait)
6. Thread the incoming Ethernet, USB, and Micro-USB wiring (if USB or Micro-USB access is desired) from the surface opening and through the knockouts.
7. Push the back box into the mounting surface. Insure that the locking tabs lie flush against the back box and that the back box goes freely into the opening.
8. Extend the locking tabs on the sides of the back box by tightening the screws inside the box until snug. Not all of the tabs must be extended to lock the back box in place, but extending a minimum of the top and bottom tabs is highly recommended. Apply enough pressure to the screw head to keep the box flush with the wall: this ensures that the locking tabs will tighten up against the inside of the wall.
   The back box is clear to allow visual confirmation that the tabs have been extended and are gripping the wall, as well as in assisting with removal if necessary.
9. For additional strength, #4 mounting screws (not included) may be secured through circular holes located at the left and right sides of the MXD-1000 (FIG. 18). In order to prevent damage to the touch panel, make sure that these are flush with the back box.
10. Insert each connector into its corresponding location along the back of the device (FIG. 19). To reach the RJ45 connector, gently pull it from beneath the electronics cover (FIG. 20). Attach the Ethernet cable and gently push the connection back under the cover.

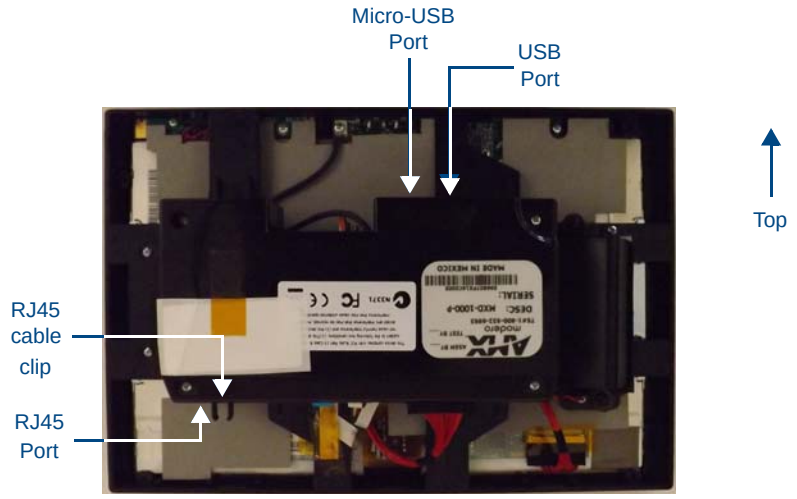


**FIG. 19** Rear of the MXD-1000 (Portrait)

**FIG. 20** Rear of the MXD-1000 (detail of the RJ45 connection)

**11.** Test the incoming wiring by attaching the panel connections to their terminal locations and applying power. Verify that the panel is receiving power and functioning properly to prevent repetition of the installation.

NOTE

*Do not disconnect the connectors from the touch panel. The unit must be installed with the attached connectors before being inserted into the mounting surface.*

**12.** Latch the panel onto the top hooks on the back box and push it down (Landscape) onto the bottom snaps or on the left side and push it to the right (Portrait) (FIG. 21). Press gently but firmly on the ends until the snaps “click” to lock it down.

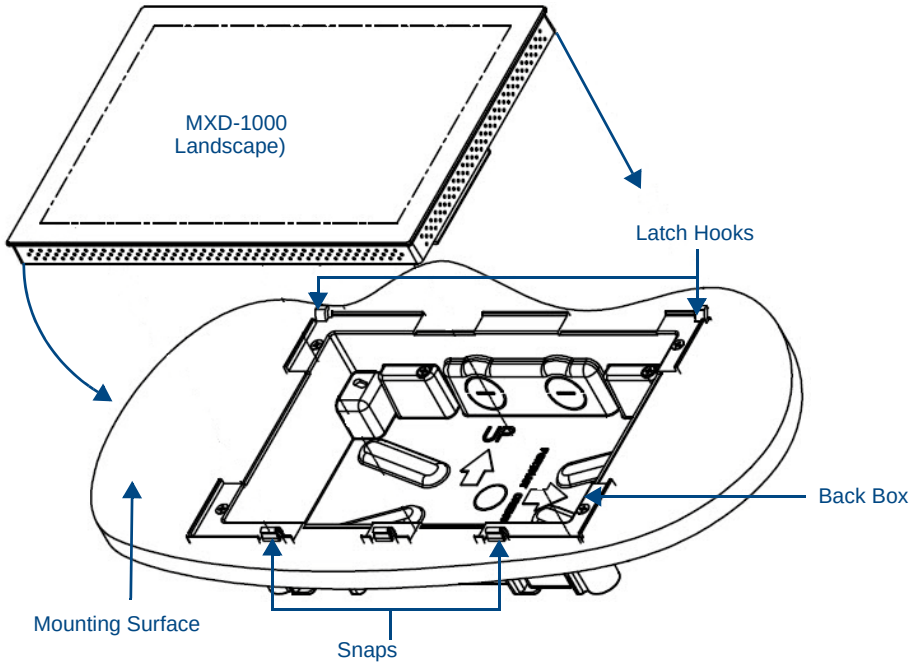


**FIG. 21** Installing the MXD-1000

WARNING

*If you see a gap between the panel and the back box, or feel any binding while locking down the panel, stop immediately and verify that no cables or other items are in the way. Do not force the panel into position, as this can cause damage to the touch screen or the panel electronics.*

13. Reconnect the terminal Ethernet and USB to their respective locations on either the Ethernet port or NetLinx Master.

## Uninstalling the MXD-1000

The MXD-1000 is held in place to the back box via latch hooks and clips on the back box (FIG. 21), securing it to the mounting surface. In certain circumstances, such as firmware updates or other maintenance that requires accessing the device's USB or Micro-USB ports, the device may need to be removed from the back box. The clips that lock down the MXD-1000's bottom edge (Landscape) or right edge (Portrait) may be unlatched in order to remove the device from the mounting surface.

To remove an MXD-1000 from its back box:

1. The bottom (Landscape) or right side (Portrait) of the MXD-1000 has a series of ventilation holes along the molding (FIG. 22). From each end, count to the eighth and ninth holes on the row closest to the panel.

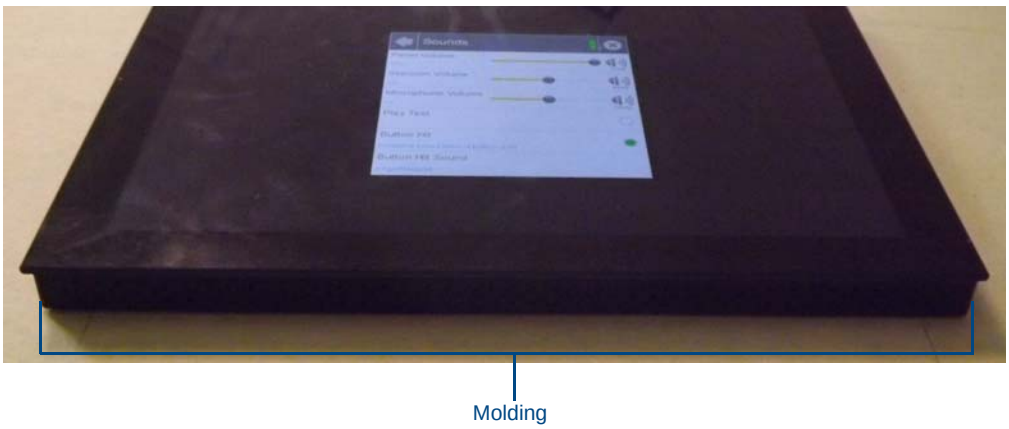


**FIG. 22** Underside of MXD-1000

2. With a stout, strong point (a push pin or straightened paperclip, for example), carefully press into the access holes in either end of the molding (FIG. 23) until the snap is disconnected. To facilitate the disconnection, grasp the bottom of the panel (Landscape) or right side (Portrait) and pull gently outward until the side of the panel is free of the snap..

**FIG. 23** Location of access holes on MXD-1000 molding

WARNING

*Always pull on the frame of the touch panel. NEVER pull on the glass edge.*

3. When the first side is free, repeat the process with the other.
4. With the edge of the touch panel free, carefully lift up and out (Landscape) or to the left and out (Portrait) to remove the touch panel from the back box. Be careful not to pull on the cables or connectors.
5. To reattach the panel to its back box, repeat the installation procedure on page 20.

# Configuration and Programming

*Programming the MXT-1000 and MXD-1000 require the use of the latest versions of NetLinx Studio and TPDesign 4, both available at www.amx.com.*

## Modero X Series Programming Guide

Information on *Settings* pages, panel configuration, and programming is included in the *Modero X Series Programming Guide*, available at **www.amx.com**.

# Upgrading Firmware

## Overview

The latest firmware (*.kit) file for each panel is available to download from www.amx.com. To download firmware files, go to the catalog page for your panel type, and click the link under "**Firmware Files**" on the right side of the catalog page (FIG. 27):

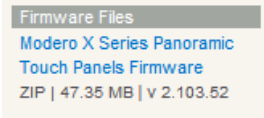


**FIG. 24** www.amx.com - example "Firmware Files" link on a touch panel catalog page

The ZIP file that is downloaded via this link contains the firmware (*.kit) file that can be loaded on the panel (as well as release notes and any relevant programming instructions).

## Upgrading Firmware via USB Flash Drive

Firmware and TPDesign4 files may be transferred to the panel via USB flash drive. When looking at the device from the front, the MXT-1000 has two USB ports on the rear right of the device (FIG. 3).

### Load the Firmware on a USB Flash Drive

1. Insert the USB flash drive in an available USB port on your PC.
   - The flash drive must be in either FAT32 or FAT16 format.
   - 32GB is the maximum acceptable size for flash drives used with touch panels
   - For wall-mounted panels (MXD-xxx), accessing the USB ports may require removing the panel from the wall mount (if a USB extension was not already installed).
2. Create a directory on the USB flash drive with one of the following names, depending on the panel you are upgrading:
   - Note that the name must match exactly (do not include the quotes)
   - These directory names are *not* case-sensitive:

| Directory Names for Firmware Files - by Touch Panel Type | | |
|---|---|---|
| Directory Name | Panel Type(s) | |
| **"MXD-2000XL-PAN"** | MXD-2000XL-PAN-P (FG5968-05)<br>MXD-2000XL-PAN-L (FG5968-11) | MXD-2000XL-PAN-P-NC (FG5968-33)<br>MXD-2000XL-PAN-L-NC (FG5968-34) |
| **"MXT-2000XL-PAN"** | MXT-2000XL-PAN (FG5968-01) | MXT-2000XL-PAN-NC (FG5968-32) |
| **"MXD-1900L-PAN"** | MXD-1900L-PAN-P (FG5968-06)<br>MXD-1900L-PAN-L (FG5968-12) | MXD-1900L-PAN-P-NC (FG5968-22)<br>MXD-1900L-PAN-L-NC (FG5968-23) |
| **"MXT-1900L-PAN"** | MXT-1900L-PAN (FG5968-02) | MXT-1900L-PAN-NC (FG5968-21) |
| **"MXT-1000"** | MXT-1000 (FG5968-03) | MXT-1000-NC (FG5968-24) |
| **"MXD-1000"** | MXD-1000-P (FG5968-07)<br>MXD-1000-L (FG5968-13) | MXD-1000-P-NC (FG5968-25)<br>MXD-1000-L-NC (FG5968-26) |
| **"MXT-700"** | MXT-700 (FG5968-04) | MXT-700-NC (FG5968-27) |
| **"MXD-700"** | MXD-700-P (FG5968-08)<br>MXD-700-L (FG5968-14) | MXD-700-P-NC (FG5968-28)<br>MXD-700-L-NC (FG5968-29) |
| **"MXD-430"** | MXD-430-P (FG5968-15) | |

3. Copy the firmware (.kit) file to be transferred (for example, "*SW5968_ModeroX_v2_103_52.kit*") into this directory on the flash drive.

NOTE

*Make sure this is the only .kit file in this directory - if not, the latest version will be used.*

4. Eject or unmount the flash drive from the PC.

### Transfer the Firmware File From the Flash Drive to the Touch Panel

1. Connect the USB Flash Drive to one of the USB Type A ports on the panel.

NOTE

*The Micro USB port cannot be used for firmware upgrades.*

2. Go to the **Install Firmware** setup page (*Configuration->Admin->Install Firmware*):
   a. Press and hold the *Sleep* button for 3 seconds to open the *Settings* page.

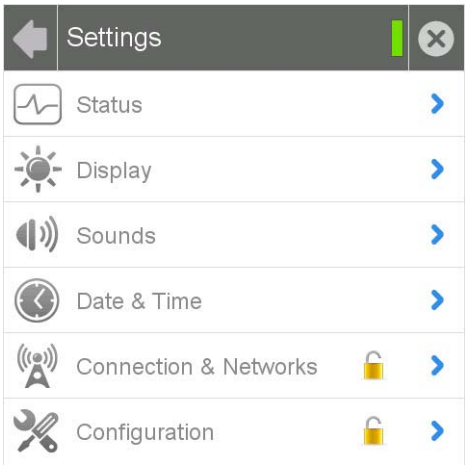


**FIG. 25** Settings page

   b. From the *Settings* page, select the *Configuration* page. This may require entering a password.
   c. From the *Configuration* page, select *Admin*.
   d. From the *Admin Configuration* page, select *Install Firmware*.
3. In the *Firmware Installation* page, select **New** to install new firmware from external disk.
4. The popup page displays the name of the firmware file (for example, "*SW5968_ModeroX_v2_103_52.kit*").
5. Select **Yes**, and follow the directions displayed on the popup.
6. Once the panel reboots it will perform the firmware upgrade.

After the upgrade, the unit contains the newly loaded version of firmware.

## Upgrading from Previous Firmware

The MXT-1000 and MXD-1000 allow the option to revert the device to the previous firmware run before an upgrade. To upgrade the device from previously loaded firmware:

1. From the *Settings* page, select the *Configuration* page.
2. From the *Configuration* page, select *Admin*.
3. From the *Admin Configuration* page, select *Install Firmware*.
4. In the *Firmware Installation* page, select *Previous*.
5. The *Confirmation Dialog* box (FIG. 26) will ask "Are you sure you want to install the following firmware?" The option to choose **Yes** will be enabled after five seconds. Press **Yes** to load the firmware listed, and **No** to return to the *Firmware Installation* popup window.

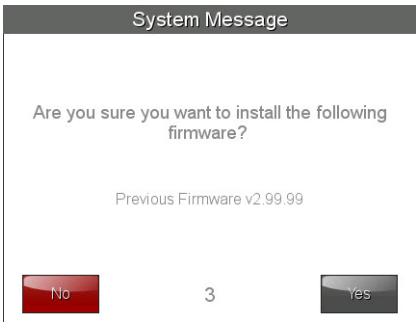


**FIG. 26** Previous Firmware installation confirmation dialog

6. If you choose **Yes**, the device will retrieve the files and then reboot.

## Returning to Factory Default Firmware

The MXT-1000 and MXD-1000 allow the option to return the device to its original factory default firmware, which may be necessary in certain situations. To return the device to its factory default firmware:

1. From the *Settings* page, select the *Configuration* page.
2. From the *Configuration* page, select *Admin*.
3. From the *Admin Configuration* page, select *Install Firmware*.
4. In the *Firmware Installation* page, select *Factory.*
5. The *Confirmation Dialog* box (FIG. 26) will ask "Are you sure you want to install the following firmware?" The option to choose **Yes** will be enabled after five seconds. Press **Yes** to load the firmware listed, and **No** to return to the *Firmware Installation* popup window.

**FIG. 27** Previous Firmware installation confirmation dialog

6. If you choose **Yes**, the device will retrieve the files and then reboot.

## Upgrading Firmware Via NetLinx Studio

The MXT-1000 and MXD-1000 use an Ethernet connection for programming, firmware updates, and touch panel file transfer via NetLinx Studio. If you have access to the panel's network, you may transfer files directly to the panel through NetLinx Studio

NOTE

*Firmware upgrades cannot be made through an Ethernet-connected PC to the touch panel, unless that PC is connected to the panel's network. Upgrades cannot be made with NetLinx Studio through a USB connection to the panel from a PC. For more information on firmware transfers, please refer to the online help in NetLinx Studio.*

To upgrade firmware via NetLinx Studio:

1. Launch NetLinx Studio and select **Settings > Master Communication Settings** from the Main menu to open the *Master Communication Settings* dialog (FIG. 28)

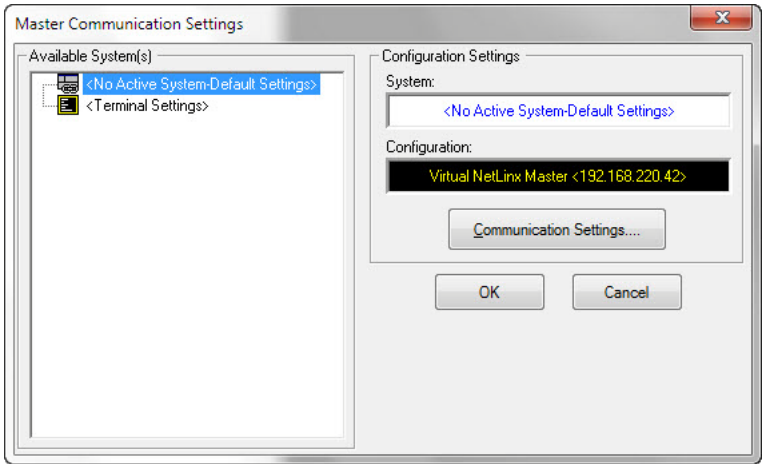


**FIG. 28** Master Communications Settings dialog

2. Click the **Communications Settings...** button to open the *Communications Settings* dialog box (FIG. 29).

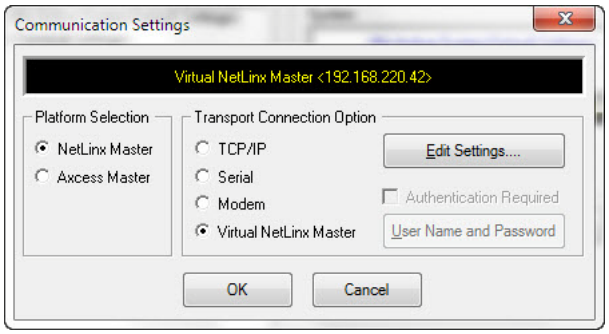


**FIG. 29** Communications Settings dialog

3. Click on the **NetLinx Master** radio button from the *Platform Selection* section.
4. Click on the **Virtual Master** radio box from the *Transport Connection Option* section to configure the PC to communicate directly with a panel. Everything else, such as the Authentication, is greyed-out because this connection is not going through the Master's UI.

5. Click the **Edit Settings** button on the *Communications Settings* dialog to open the *Virtual NetLinx Master Settings* dialog (FIG. 30).

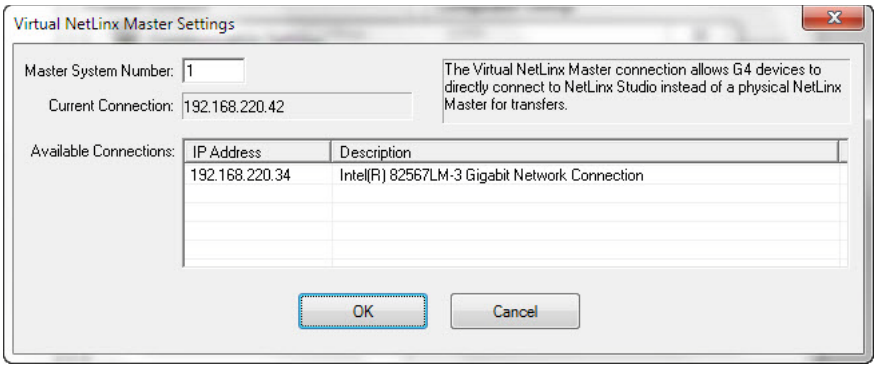


**FIG. 30** Virtual NetLinx Master Settings

6. Within this dialog, enter the *Master System number*. The default is **1**.
7. In the *Available Connections* section, click on the IP address for the touch panel to select it.
8. In the *Virtual NetLinx Master Settings* dialog box, click **OK** to close the box.
9. In the *Communications Settings* dialog box, click **OK** to close the box.
10. In the *Master Communications Settings* dialog box, click **OK** to save your settings and return to the main NetLinx Studio application.
11. Click the **OnLine Tree** tab in the Workspace window to view the devices on the Virtual System. *The default System value is 1*.
12. Right-click on the *Empty Device Tree/System* entry and select **Refresh System** to re-populate the list.

*The panel will not appear as a device below the virtual system number, in the* Online Tree *tab, until both the system number used in step 14 for the Virtual NetLinx Master is entered into the Master Connection section of the* System Settings *page and the panel is restarted.*

13. The OnLine Tree should now display the connection to the device. The *Connection Status* Icon on the device may take up to five seconds to register the connection.

## Viewing devices on the Virtual System

1. After the *Communication Verification* dialog window verifies active communication between the Virtual Master and the panel, click the **OnLine Tree** tab in the Workspace window (FIG. 31) to view the devices on the Virtual System. *The default System value is **1**.*
2. Right-click on the System entry (FIG. 31) and select **Refresh System** to re-populate the list. Verify the panel appears in the **OnLine Tree** tab of the Workspace window.

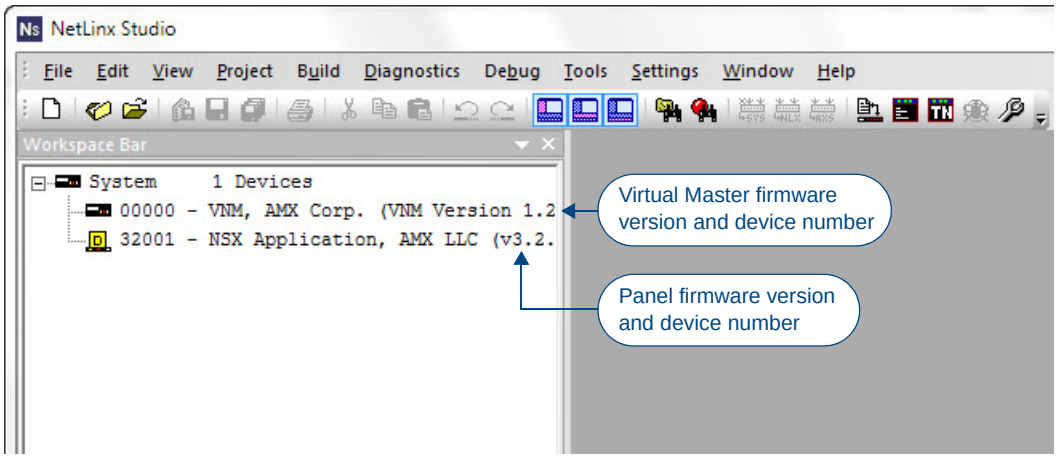
NetLinx Studio
File Edit View Project Build Diagnostics Debug Tools Settings Window Help
Workspace Bar
System 1 Devices
00000 - VNM, AMX Corp. (VNM Version 1.2
32001 - NSX Application, AMX LLC (v3.2.
Virtual Master firmware version and device number
Panel firmware version and device number

**FIG. 31** NetLinx Workspace window (showing panel connection via a Virtual NetLinx Master)

## Downloading firmware

NOTE

*The panel-specific firmware is shown on the right of the listed panel. Download the latest firmware file from **www.amx.com** and then save the Kit file to your computer. Note that each Kit file is intended for download to its corresponding panel. In some cases, several Kit files may be included in a .zip file; extract the .zip file to access the required Kit file.*

1. If the panel firmware version is not the latest available; locate the latest firmware file from **www.amx.com**.
2. Click on the desired Kit file link and after accepting the Licensing Agreement, verify download of the Modero Kit file to a known location.
3. Select **Tools > Firmware Transfers > Send to NetLinx Device** from the main menu to open the *Send to NetLinx Device* dialog (FIG. 32). Verify that the panel's System and Device number values match those values listed within the System folder in the **OnLine Tree** tab of the Workspace window.

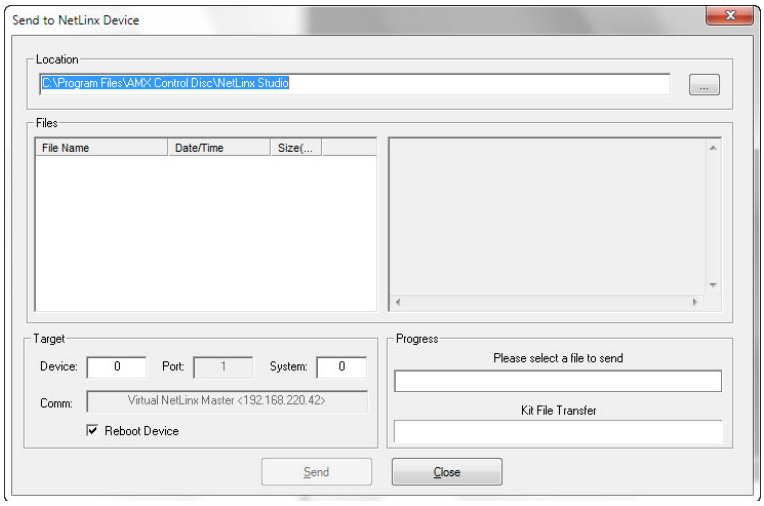


**FIG. 32** Send to NetLinx Device dialog window

4. Select the appropriate Kit file from within the *Browse for Folder* window (FIG. 33).

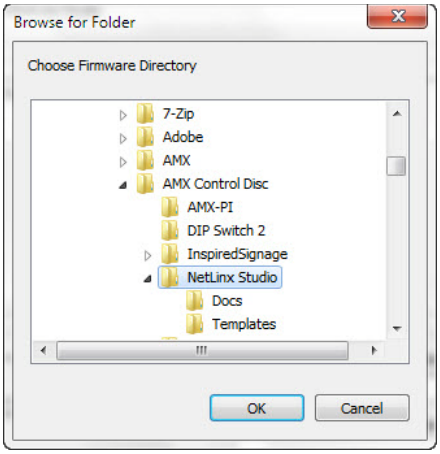


**FIG. 33** Browse for Folder window

5. Select the panel's Kit file from the **Files** section.
6. Enter the **Device** value associated with the panel and the **System** number associated with the Master (*listed in the OnLine Tree tab of the Workspace window*). *The Port field is greyed-out.*
7. Click the **Reboot Device** checkbox if it is not already checked. This causes the touch panel to reboot after the firmware update process is complete.
8. Click **Send** to begin the transfer. The file transfer progress is indicated on the bottom-right of the dialog.
9. After the file transfer is complete, the panel will automatically reboot.
10. After the panel has finished rebooting, right-click the associated System number and select **Refresh System**. This causes a refresh of all project systems, establishes a new connection to the Master, and populates the System list with devices on your particular system.
11. Confirm that the panel has been properly updated to the correct firmware version.

NOTE

*Verify you have downloaded the latest firmware file from **www.amx.com** and then save the Kit file to your computer.*

# Appendix: Troubleshooting

## Overview

This section describes the solutions to possible hardware/firmware issues that could arise during the common operation of a Modero X touch panel.

### Panel Doesn't Respond To Touches

**Symptom:** The device either does not respond to touches on the touch screen or does not register the touch as being in the correct area of the screen.

If the screen is off:

- *The device may be in Display Sleep Mode.* Press and hold the **Sleep** button to wake up the panel.
- *The device may not be connected to power.* Verify that the power source is connected to the device and receiving power.

### Panel Isn't Appearing In The Online Tree Tab

1. Verify that the System number is the same on both the NetLinx Project Navigator window and the System Settings page on the device.
2. Verify the proper NetLinx Master IP and connection methods entered into the Master Connection section of the *System Settings* page.

### Can't Connect To a NetLinx Master

**Symptom:** I can't seem to connect to a NetLinx Master using NetLinx Studio.

Select *Settings* > *Master Comm Settings* > *Communication Settings* > *Settings (for TCP/IP)*, and uncheck the "Automatically Ping the Master Controller to ensure availability".

The pinging is to determine if the Master is available and to reply with a connection failure instantly if it is not. Without using the ping feature, a connection may still be attempted, but a failure will take longer to be recognized.

*If you are trying to connect to a Master controller that is behind a firewall, you may have to uncheck this option. Most firewalls will not allow ping requests to pass through for security reasons.*

When connecting to a NetLinx Master controller via TCP/IP, the program will first try to ping the controller before attempting a connection. Pinging a device is relatively fast and will determine if the device is off-line, or if the TCP/IP address that was entered was incorrect.

If you decide not to ping for availability and the controller is off-line, or you have an incorrect TCP/IP address, the program will try for 30-45 seconds to establish a connection.

### Only One Modero Panel In My System Shows Up

**Symptom:** I have more than one Modero panel connected to my System Master and only one shows up.

Multiple NetLinx Compatible devices can be associated for use with a single Master. If the user does not assign a device number, one will be assigned automatically to the panel. When using multiple panels, different Device Number values have to be assigned to each panel.

1. Press and hold the **Sleep** button to open the *Settings* page.
2. Press the **Protected b**utton, enter **1988** into the on-screen Keypad's password field, and press **Done** when finished.
3. Enter a Device Number value for the panel into the Device Number Keypad. The range is from 1 - 32000.

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